REMARKS/ARGUMENTS

Reexamination and reconsideration of this application as amended is requested. By this amendment, independent Claims 1, 25, 33, 41, 47, and 48, have been amended. After this amendment, Claims 1-14, 17-19, 21-41, and 47-48 remain in this application. No new matter was added by this amendment.

(1-5) Applicants acknowledge that the Examiner accepted and entered Applicants' previous Amendment After Final Office Action along with Applicants' request for continued examination. The Applicants' Amendment was dated February 17, 2004.

Claim Rejections - 35 USC § 102

(6-9) The Examiner rejected Claims 25 and 47 under 35 U.S.C. § 102(e) as being anticipated by Chaddha, United States Patent No. 6,728,775.

Summary of a System and Server According to the Present Invention

A system and server, according to the present invention, solves a problem with limited system resources that may be allocated for transmitting data to a number of users requesting the data in a network such as the Internet. The resources for sending the data may be inadequate for the task relative to the number of recipients demanding the data at substantially the same time or at the same place in the system database or data store. The consequence of any such inadequate resource allocation will be congestion and disappointed recipients who demand the data but are placed low or out of the queue because there are an insufficient number of servers, for example, to retrieve the data from the store and place it on the Internet for transmission to the recipients. User simultaneous requests for a server to transmit streaming data, such as for music, video, or even static web pages, can place an overload on the resources used to transmit the streaming data. Any such demand, coming from the recipient end of the transmission medium, cannot be predicted until the demands for data are made. At the same time, the recipient expects the

demand to be instantly satisfied by immediate connection to the data and to promptly begin enjoying the show or the web pages or the music or whatever may be represented or contained in the data stream. There is a need for managing demands or requests made at substantially the same time or at the same location in the data stream, which may be beyond the system capability for supplying the information within the time expected and which reduces this peak load and shifts it over the space of the data transmission while preserving the impression of immediate satisfaction for each information recipient.

A system and method according to the present invention provides for a way of balancing server resources for a media distribution server by establishing streams that are each complete in and of themselves, but are offset by a time interval. The system and method can spread the load placed on a transmission facility to drive a condition of load peaks toward a balanced steady state condition. Also, when a user receiving a data stream experiences a problem receiving the data (e.g., due to network difficulty), or if the server wants to insert another media clip in the middle of a data stream, such as inserting advertisements, then the server can switch users from a first data stream to a second data stream. So, for example, if a user is listening to an audio data stream, and there's a network interruption that lasts for 2 seconds, the server could automatically switch the user to an audio data stream (representing the same audio) that is two seconds behind the first one. The server, in this example, determines that there was a communication problem with a user's reception of a data stream, and then the server automatically, and independent of any user requests for data, decides to move the user between data streams to allow the user to listen to the interrupted 2 seconds of the data stream. Therefore, according to the present inventive system, server, and method, while a user can request data to be transmitted from the server in a data flow (e.g., one or more data streams collectively representing the requested data for transmission to the user) the server independent from any user request for data arranges the user in a particular group of one or more users, where the group represents a specific data stream to be transmitted to the group of one or more users. The server selects what the particular group to move the user into. The server decides what specific group (e.g., what particular data stream) to move the user to based on the server's own schemes (e.g., transmission error recovery, balancing server resources to a steady state, or for advertisement insertion). Also, the server can

realign a user from a first group corresponding to receiving user requested data at a first location in a data stream to a second group corresponding to receiving user requested data at a second location in the data stream, where the second location being selected by the server, independent of said user requests for data, to change the location in the data stream the respective user is receiving user requested data.

Chadda '775

Chadda teaches something different. Chadda teaches that a stream can be decomposed into a number of parts – a base stream that could be received and used by itself, and one or more additional enhancement layers. Chadda teaches two kinds of enhancement layers. One is more data about the corresponding base layer piece (e.g., extra granularity for the same picture / more pixels). The second type of enhancement layer provides more "frames". So if the full high quality media data is 30 frames a second, and the base layer provides 24 frames a second, then a temporal enhancement layer could provide 2 frames a second which means that a client can receive the base layer + temporal enhancement layer and get up to 26 frames a second. The enhancement layers are not useful of themselves. Chadda teaches that the server tells the client about these enhancement layers (each a multicast group), and the client makes the decision as to what layers to receive (what multicast group to join and data stream to receive) and the client then uses the received data (base layer and at least one enhancement layer) to regenerate the multimedia data at the client.

Main Differences

1) An exemplary system and method according to the present invention provides multiple data streams that are each complete media data streams for use by the client, and there is no aggregation of base and enhancement layers. The user "listens" to one data stream at a time.

Chadda, on the other hand, provides a base layer and one or more enhancement layers that provide enhancement information (see Chadda, column 4, lines 62-67) to the client so that

the client can regenerate a desired data stream at the client with desired spatial quality (e.g., desired image resolution) in image information (see col. 5, lines 1-26), or desired temporal quality (e.g., desired number of video frames) in an image information (see col. 5, lines 42-57).

2) The present inventive server decides whether to move a user from a first data stream to a second data stream based on the server's own schemes (e.g., transmission error recovery, balancing server resources to a steady state, or for advertisement insertion). This decision process by the server is independent of any request for data by a user.

Chadda, on the other hand, teaches a system for saving network bandwidth and providing an adaptable collection of data streams – that is, if the client is "out of juice" in resources the client can reduce the number of enhancement layers it takes in, and consequently the client gets a lesser quality but still useful data stream. If the client determines that they have an abundance of network bandwidth connectivity the client can increase the number of enhancement layers they take in. The server sends the client the base layer and the enhancement layers, and the client chooses what multicast group to join and data to receive and use to regenerate the desired data stream at the client.

3) The present inventive server does not necessarily change operation due to available network bandwidth or available resources at the client; the present server provides flexibility in "time" in the data stream. For example, if there are "n" streams, each 2 seconds apart, and if the server determines that a client's reception was interrupted or the client missed some packets, the server causes the client to stream hop over to the right data stream. The present inventive server does group the recipients so that many can take data from one of the data streams.

Addressing Specific Rejections to the Claims

Applicants have amended Claims 25 and 47, to more clearly and distinctly recite the presently claimed invention. These claims are directed at a server that balances server resources

to a steady state by distributing the user load and shifting the user load toward a steady state load on the server. In particular to the present amendment, Claim 25 now recites the server "independent of said user requests for data and while preserving the impression to individual users requesting data that each is being immediately served with requested data," arranging said individual requesters in each of said respective groups. Claim 47, in similar fashion to Claim 25, recites the server "independent of said user requests for data and while preserving the impression to individual users requesting data that each is being immediately served with requested data," arranging said users in groups. Additionally, Claim 47 now also recites the distributing of the user load and shifting the user load toward a steady state load on the server, which more closely conforms Claim 47 to the language already recited for Claim 25. Support for the amended claim language, as recited for amended independent Claims 25 and 47, and for all dependent claims depending therefrom, respectively, may be found in the original patent application as filed. For example, please see page 3, lines 3-23, with emphasis to lines 7-9, (stating "preserving the impression to the individual recipient that it is being immediately served with a requested data file or video or audio data feed, while at the same time, that individual recipient is being shifted in time or space, relative to the data transmission and data file or data feed"), and also see page 5, lines 19-24, (where the system can move a user or recipient relative to the time or data store location of the data transmission, by moving the recipient or user to successive groups or server connections associated with different parts of the data to connect the user to selected materials such as advertisements). Also as a further example, please see page 3, lines 17-23, of the original specification, where the discussion includes the following paragraph:

"The server can realign a respective user with a said data stream to change the location in said data stream from which the user is receiving the data, for example, by moving a pointer associated with the user's respective socket to another location in said data store, or the position of the user relative to the data in the data stream can be changed in relation to the time of the data being transmitted in said data stream, by realigning the user or recipient with a different server socket and port delivering or transmitting a time shifted part of the data transmission."

No new matter was added by the amended claim language.

A proper rejection under 35 U.S.C. § 102(e) requires that a single reference teach (i.e., identically describe) each and every element of the rejected claims as being anticipated by Chadda. See MPEP §2131 "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." (Emphasis Added) *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim."

The Office Action, on page 3, lines 18-20, characterizes Chadda, column 7, lines 14-50, as teaching that the system shifts the user load toward a steady state load on the server by distributing groups over the transmission of said data flow by time of data stream transmission or by place in the data flow transmission. Applicants respectfully disagree with such characterization of Chadda. As has been discussed above, Chadda teaches sending the base layer and the enhancement layers as embedded data streams to provide the client the data to regenerate a desired quality of data stream based on available bandwidth of a network. Also, Chadda teaches that the client (not the server) chooses the amount of data it desires to receive and to use to regenerate a desired data stream at the client. See, for example, Chadda, column 7, lines 44-49.

Also, the presently claimed invention, as recited for amended Claims 25 and 47, and for all dependent claims depending therefrom, respectively, are directed at

a server, that independent of user requests for data and while preserving the impression to individual users requesting data that each is being immediately served with requested data, arranges the users in groups that each corresponds to reception of user requested data in a data stream at a point of a data flow. The same user requested data in a respective data stream is sent to the respective users in respective groups, and the server distributing the user load on the server and shifting the user load toward a steady state load on the server by distributing the respective groups over the transmission of said data flow by time of data stream transmission or by place in the data flow transmission, as recited for Claim 25. Further, as recited for Claim 47, the server sending the user requested data in at least one data stream from the data store to the groups with

the groups of users receiving separate respective portions of the data (in the data flow) relatively displaced in space or time.

As has been discussed above, the present inventive server moves users from group to group (from data stream to data stream) based on the server's own schemes (e.g., balancing server resources to a steady state). Chadda, on the other hand, teaches a system for saving network bandwidth and providing an adaptable collection of data streams to a client, where the client determines from the available network bandwidth and the available resources at the client what choice of a base layer and a number of enhancement layers that the client wants to receive and use to regenerate a desired data stream of a desired quality. The spatial enhancement layers are for managing the spatial quality (e.g. the resolution of the image) and the temporal enhancement layers are for managing the temporal quality of an image by adding/subtracting video frames in a video data stream. This is different than the presently claimed invention.

Therefore, in view of the amendment and discussion above, Applicants believe that the rejection of Claims 25 and 47, under 35 U.S.C. § 102(e) has been overcome by the amendment and remarks above. Applicants request that the Examiner withdraw the rejection and allow the claims.

Claim Rejections - 35 USC § 103

(10-49) The Examiner rejected Claims 1-14, 17-24, 26-41, and 48, under 35 U.S.C. § 103(a) as being unpatentable over Chadda, United States Patent No. 6,728,775, in view of Gopalakrishnan, United States Patent No. 6,704,790.

First of all, while the Office Action appears to be rejecting claim 20, this is a typo because claim 20 was canceled in the previous amendment and the Office Action acknowledged this cancellation of claim 20 on page 1, numbered paragraph 3. Secondly, Applicants have amended independent Claims 1, 25, 33, 41, and 48, to more clearly and distinctly recite the present invention. Dependent Claims 2-11, 17-19, and 21, depend from independent Claim 1, dependent Claims 12-14 and 22-24 depend from independent Claim 48, dependent Claims 26-32

depend from independent Claim 25, dependent Claims 34-40 depend from independent Claim 33.

Independent Claims 1, 25, 33, 41,and 48, were amended to include the following language:

"independent of said user requests for data and while preserving the impression to individual users requesting data that each is being immediately served with requested data," and the various amended claims further reciting "arranging" or "for arranging" the users in one or more groups, etc.

Additionally, Claims 1 and 33, were amended such that the second location in the data stream is selected by the server, independent of the user requests for data.

Further, Claim 41 was amended such that the method includes moving, independent of said user requests for data, one of the plurality of users from the first group to the second group.

Lastly, Claim 48 was amended such that the second point in time is selected by the server, independent of said user requests for data.

Support for the amended claim language, as recited for amended independent Claims 1, 25, 33, 41, and 48, and for all dependent claims depending therefrom, respectively, may be found in the original patent application as filed. The support for "independent of said user requests for data and while preserving the impression to individual users requesting data that each is being immediately served with requested data," has already been discussed above with respect to the rejection of Claim 25 under 35 USC § 102. The further use of the language "independent of said user requests for data" additionally found in amended Claims 1, 33, 41, and 48, is similarly supported for similar reasons to those immediately discussed above with respect to all amended independent claims. No new matter was added by the amended claim language.

As has been discussed above, Chadda teaches that a stream can be decomposed into a number of parts – a base stream that could be received and used by itself, and one or more additional enhancement layers. Chadda teaches two kinds of enhancement layers. One is more data about the corresponding base layer piece (e.g., extra granularity for the same picture / more pixels). The second type of enhancement layer provides more "frames". So if the full high quality media data is 30 frames a second, and the base layer provides 24 frames a second, then a

temporal enhancement layer could provide 2 frames a second which means that a client can receive the base layer + temporal enhancement layer and get up to 26 frames a second. The enhancement layers are not useful of themselves. Chadda teaches that the server tells the client about these enhancement layers (each a multicast group), and the client makes the decision as to what layers to receive (what multicast group to join and data stream to receive) and the client then uses the received data (base layer and at least one enhancement layer) to regenerate the multimedia data at the client.

Gopalakrishnan teaches server-side stream switching. See column 6, lines 12-13, and column 7, lines 50-52. The client switches from a first data stream to a second data stream based on the server sending and the client receiving a packet with a predetermined switching designator. This server mechanism provides for switching the client from, for example, a first multimedia clip to a second multimedia clip. For example, the first data stream is an introduction of a television program and the second data stream is an advertisement for playback after the introduction of the television program. See column 5, lines 21-25. See also column 6, lines 16-18. Another example generally mentioned in the article is for server-side HTTP stream switching using multi-media clips that are sequentially played back at the client. See column 6, lines 7-10, lines 15-16, lines 27-30, and lines 59-67. See also column 1, lines 44-54, and column 2, lines 15-18.

On the other hand, as has been discussed above, the presently claimed invention as recited for amended independent Claim 25, and also as recited for dependent Claims 26-32 that depend from Claim 25, is directed at

a server, that independent of user requests for data and while preserving the impression to individual users requesting data that each is being immediately served with requested data, arranges the users in groups that each corresponds to reception of user requested data in a data stream at a point of a data flow. The same user requested data in a respective data stream is sent to the respective users in respective groups, and the server distributing the user load on the server and shifting the user load toward a steady state load on the server by distributing the respective groups over the transmission of said data flow by time of data stream transmission or by place in

the data flow transmission. It should be clear that Chadda's client-side driven download of a base layer and one or more enhancement layers for saving network bandwidth and providing an adaptable collection of data streams to the client, where the client determines from the available network bandwidth and the available resources at the client what choice of a base layer and a number of enhancement layers that the client wants to receive and use to regenerate a desired data stream of a desired quality, does not teach or suggest the presently claimed invention as described above. Additionally, it should be clear that Gopalakrishnan's server-side stream switching system for causing a client to switch between data streams, where the first data stream is a multimedia clip of an introduction of a television program and the second data stream is a multimedia clip of an advertisement for playback after the introduction of the television program, does not teach or suggest the presently claimed invention as described above. Neither cited reference, nor any combination thereof, teaches or suggests, for example, the server distributing the user load on the server and shifting the user load toward a steady state load on the server by distributing the respective groups over the transmission of said data flow by time of data stream transmission or by place in the data flow transmission.

Further, with respect to Claims 1-14, 17-24, 33-41, and 48, it should be clear that neither cited reference nor any combination of the two cited references teaches or suggests the claimed invention. For example, all of these claims are directed to a server that, independent of user requests for data, arranging groups of users, each group corresponding to a data stream for the users in the group receiving user requested data in a data flow.

Claim 1, and dependent Claims 2-11 that depend from Claim 1, also are directed at realigning a user from a first group to a second group such that the user receiving user requested data at a second location in the data stream, the second location being selected by the server, independent of said user requests for data, to change the location in the data stream the respective user is receiving user requested data to <u>any location in the same data stream</u> other than the first location in the data stream. Note that this is different than the server-side stream switching generally taught or suggested by Gopalakrishnan to switch a user between multi-media clips, such as between an introduction of a television program and an advertisement. This is clearly different than Chadda's client-side driven download of a base layer and one or more

enhancement layers for saving network bandwidth and providing an adaptable collection of data streams to the client, where the client determines from the available network bandwidth and the available resources at the client what choice of a base layer and a number of enhancement layers that the client wants to receive and use to regenerate a desired data stream of a desired quality. Note also that Chadda's spatial enhancement layers are for managing the spatial quality (e.g. the resolution of the image) and the temporal enhancement layers are for managing the temporal quality of an image by adding/subtracting video frames in a video data stream. This is very different than the use of the terms first location and second location in the data stream, as recited for the present Claims 1 and 2-11. Therefore, neither individual cited reference nor a combination of the two references teaches or suggests the presently claimed invention.

With respect to amended independent Claim 48, and dependent Claims 12-14 that depend from amended independent Claim 48, a server realigns a user from a first group to a second group that receives transmission of the user requested data being transmitted in the first location in the data flow at a second point in time, the second point in time being selected by the server, independent of said user requests for data, to change the relative time the respective user is receiving the transmission of said user requested data being transmitted at the first location in the data flow. That is, the user receives the same requested data being transmitted in the first location but at a second point in time that is a change in relative time. This should be clear is not taught or suggested by Chadda's client-side driven download of a base layer and one or more enhancement layers for saving network bandwidth and providing an adaptable collection of data streams to the client. Note also that Chadda's spatial enhancement layers are for managing the spatial quality (e.g. the resolution of the image) and the temporal enhancement layers are for managing the temporal quality of an image by adding/subtracting video frames in a video data stream. This is very different than the use of the terms first location in the data flow and a second point in time, as recited for the present Claim 48, and dependent Claims 12-14. Also, it should be clear, in view of the discussion above, that Gopalakrishnan's server-side stream switching system that generally teaches a server causing a client to switch between data streams, such as switching between multi-media clips of a television program and an advertisement, does not teach or suggest the presently claimed invention, as recited for the present Claim 48, and dependent Claims 12-14. Accordingly, neither Chadda, Gopalakrishnan, nor a combination of

the two references, teaches or suggests the presently claimed invention as discussed above with respect to the claims 48 and 12-14.

With respect to amended independent Claim 33, and for dependent Claims 34-40 that depend from Claim 33, these claims are directed to a method for realigning a user from a first group (a first location in a data stream) to a second group (a second location in a data stream) to change the location in the data stream that the user receives the same user requested data. The server selects the second location independent of the user requests for data. As has already been discussed above, with respect to Claim 1, and dependent Claims 2-11, neither Chadda, Gopalakrishnan, nor a combination of the two references, teaches or suggests the presently claimed realigning a user between groups to change the location in the data stream that the user is receiving the same data in the data stream. These arguments will not repeated here for conciseness.

With respect to amended independent Claim 41, this claim is directed at a method for arranging, independent of user requests for data and while preserving the impression to individual users requesting data that each is being immediately served with requested data, a plurality of users into groups, where the method moves, independent of the user requests for data, a user from a first group to a second group so that the user receives the user requested data at a point in the data flow that is relatively displaced in space (at a different location in the data flow) or time (at a different time for receiving the same requested data) from the reception by the first group. As has already been discussed above with respect to realigning a user from a first group to a second group, such as for time shifting the user or for shifting the location the user receives the requested data in a data flow, with similar arguments Applicants submit that neither Chadda, nor Gopalakrishnan, nor a combination of the two references, teaches or suggests the presently claimed invention as recited for amended Claim 41.

Therefore, in view of the discussion above, Applicants believe that the rejection of Claims 1-14, 17-24, 26-41, and 48, under 35 U.S.C. § 103(a) has been overcome by the amendment and remarks above. Applicants respectfully request that the Examiner withdraw the rejection.

Conclusion

The foregoing is submitted as full and complete response to the Official Action mailed June 4, 2004, and it is submitted that Claims 1-14, 17-19, 21-41, and 47-48, are in condition for allowance. Reconsideration of the rejection and reexamination are requested. Allowance of Claims 1-14, 17-19, 21-41, and 47-48, is earnestly solicited.

The present application, after entry of this amendment, comprises forty (40) claims, including six (6) independent claims. Applicants have previously paid for forty seven (47) claims, including seven (7) independent claims. Applicants, therefore, believe that an additional fee for claims is currently not due.

However, a petition for a three (3) month extension of time to file this Response has been attached. The Commissioner is authorized to charge the three month extension fee in the amount of **$980**, or if this fee amount is insufficient or incorrect, then the Commissioner is authorized to charge the appropriate fee amount to prevent this application from becoming abandoned, or credit any overpayment, to Deposit Account **50-1556**.

If the Examiner believes that there are any informalities that can be corrected by Examiner's amendment, or that in any way it would help expedite the prosecution of the patent application, a telephone call to the undersigned at (561) 989-9811 is respectfully solicited.

The Commissioner is hereby authorized to charge any fees that may be required or credit any overpayment to Deposit Account **50-1556**.

In view of the preceding discussion, it is submitted that the claims are in condition for allowance. Reconsideration and allowance of the claims is requested.

Respectfully submitted,

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